YMCA UNIVERSITY OF SCIENCE AND TECHNOLOGY, FARIDABAD
DEPARTMENT OF HUMANITIES AND SCIENCES

OPEN ELECTIVE - 1
CODE: OES-301A

SUBJECT NAME: WASTE MANAGEMENT IN OUR DAILY LIFE
NO. OF CREDITS: 3

			SESSIONAL : 25
L	T	P	FINAL EXAM: 75
3	0	0	TOTAL : 100

NOTE: Question paper has two parts. Part-1 has 10 questions each of 2 marks. It covers the entire syllabus. Attempt any four questions out of six from Part-2.

COURSE OBJECTIVES

The course aims at to provide knowledge about characteristics and types of solid waste generated in our daily life. The students will be able to learn various methods for waste processing, prevention, treatment and final disposal and may aply in their daily life.

UNIT 1: WASTE

What is waste? Sources of waste generation; Composition and classification of waste; Sorting and segregation of waste at source of generation (kitchen, garden, residential colonies and commercial areas); waste collection – sample collection bins; storage and transport.

UNIT 2: WASTE PROCESSING AND PREVENTION

Waste prevention and recycling at home, small communities; reduce, recycle and reuse; Waste processing – size and volume reduction.

UNIT 3: WASTE TREATMENT

Safe disposal of waste; open dumping, problems of open dumping and burning; landfills; diseases associated with waste handling; Best practices for solid waste disposal

UNIT 4: DISPOSAL OF WASTE

Composting – vermicomposting, kitchen garden; anaerobic digestion – biogas, manure; waste to energy – pyrolysis, refuse derived fuels.

COURSE OUTCOMES:

After completing this course, the students will be able to:

- Understand the characteristics and types of solid waste.
- Know about various methods for waste processing and prevention.
- Apply the knowledge for waste treatment..
- Get knowledge of final disposal of wastes in daily life.

REFERENCES:

1. Ramachandra T.V., (2009), *Management of municipal solid waste*, published by TERI Press, New Delhi.
2. Williams, P. T. Williams A. (2005), *Waste treatment and disposal*, 2nd Edition Wiley publications, UK.
3. Dhamija, U., (2009). *Sustainable solid waste management: issues, policies, and structures*. Academic Foundation, New Delhi.

OPEN ELECTIVE – 2

CODE: OES-302A

SUBJECT NAME: ENVIRONMENTAL CONSERVATION

NO. OF CREDITS: 3

			SESSIONAL : 25
L	T	P	FINAL EXAM: 75
3	0	0	TOTAL : 100

NOTE: Question paper has two parts. Part-1 has 10 questions each of 2 marks. It covers the entire syllabus. Attempt any four questions out of six from Part-2.

COURSE OBJECTIVES:

The course provides students a comprehensive review of our natural resources including land, water, energy, biodiversity, etc. The students will be able to understand the importance of natural resource management and market based mechanisms for environment protection.

UNIT 1: INTRODUCTION

Man and environment, Importance of environmental conservation, natural resources, waste as a resource.

UNIT 2: SOIL AND WATER CONSERVATION

Land degradation, soil erosion, conservation measures – afforestation, mulching, Soil fertility restoration - organic manure application, need for sustainable water management, judicious water consumption at home, measures for effective irrigation – sprinkler, drip, watershed management, rain water harvesting, indigenous micro-irrigation devices. Evaluation of water footprints – A case study.

UNIT 3: BIODIVERSITY CONSERVATION

Significance of biodiversity conservation, threats to biodiversity – pollution, population, habitat destruction, overexploitation, man- wildlife conflicts, strategies for biodiversity conservation - garden – herbal, ornamental, kitchen, organic farming and biodiversity

conservation, conservation farming, national parks, sanctuaries, zoo, botanical gardens, Forest and wildlife conservation.

UNIT 4: ENERGY CONSERVATION

Ways to conserve energy at home, offices, buildings, energy efficiency – electrical appliances, CFL, LEDs, OLEDs, clean fuels for vehicles. Evaluation of carbon footprints – A case study.

COURSE OUTCOMES:

After completing this course, the students will be able to:

- Understand about various natural resources.
- Know about various methods for soil and water conservation.
- Apply the knowledge for biodiversity conservation.
- Get knowledge of energy conservation.

REFERENCES:

1. Ahluwalia, V.K. Environmental Studies : Basic concepts, TERI, 2013.
2. Beheim, Einar (Ed.) Integrated watershed management : perspectives and problems, Springer, 2010.
3. Bhatt, S. Environment protection and sustainable development, APH Publishing Corporation,2004.
4. Burchett, Stephen. Introduction to wildlife conservation in farming, Wiley- Blackwell, 2010.
5. Das, S.K. Watershed development and livelihoods: People's action in India,Routledge India, 2007.
6. Fa, John E. Zoo Conservation Biology (Ecology, Biodiversity and Conservation), Durrell Wildlife Conservation Trust, 2011.
7. Fatik B. Mandal. And Nepal C. Nandi. Biodiversity: concepts, conservation and biofuture, Asian Books, 2013
8. Heathcote, Isobel W. Integrated watershed management : principles and practice (2^{nd} Ed), John Wiley & Sons, 2009
9. Prasad, Govid Conservation of natural Resources, Discovery Publishing, New Delhi,2013.
10. Srivastav, Sweta. Basics of Environmental Science,Anmol Publications Pvt Ltd, 2008.